DEPARTMENT OF ENERGY

AMES SITE OFFICE

OPERATIONAL AWARENESS PROGRAM DESCRIPTION

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1.0 Introduction

Operational Awareness is the aggregate of all interactions between Department of Energy (DOE), Ames Site Office (AMSO) and Ames Laboratory personnel concerning the management of the Ames Laboratory, facilities, and programs as well as information obtained from external assessments by regulators, independent DOE assessments, etc. Operational Awareness includes a variety of interactions such as: routine observations, the communication of expectations, monitoring of specific processes and operations, and specific actions that are taken by AMSO to ensure that an integrated management approach is used to manage the Ames Laboratory. External sources of information (independent assessments, inspections, etc.) are also used as data inputs in the Operational Awareness program.

This program description applies to AMSO staff and matrix support. This description explains how AMSO performs many of the line-management responsibilities assigned to it. It includes discussion of how AMSO performs its line management responsibilities for safety. Additional details concerning how AMSO performs operational awareness functions are found in AMSO SOP-5: Facility Representative Program and AMSO SOP-12: Assessments of Laboratory Management Systems. The AMSO Functions, Roles and Responsibilities Manual (FRAM) further identifies ES&H requirements, responsibilities and authorities.

Ames Laboratory's mission is to conduct fundamental research in the physical, chemical, materials, and mathematical sciences and engineering, which underlie energy generating, conversion, transmission and storage technologies, environmental improvement, and other technical areas essential to national needs. Ames Laboratory core competencies are in the areas of advanced materials synthesis, characterization and procession, computational and theoretical sciences, environmental characterization and remediation technologies.

Additional information about Ames Laboratory can be found at: http://www.ameslab.gov/.

2.0 Operational Awareness Program Goals

The Operational Awareness program is an essential component of AMSO oversight of Ames Laboratory operations. AMSO's specific operational awareness goals are to accomplish the following:

1. Communicate DOE performance expectations to the contractor;

2. Promote incorporation of ISM into early phases of work planning through involvement in Ames Laboratory's work planning, budgeting, and prioritization decisions.

3. Maintain awareness of, and monitor selected, planned operations and activities;

4. Monitor the effectiveness and consistency of the contractor in establishing and implementing ISM systems, including gathering data on the effectiveness of implementation of the core functions and guiding principles of ISM;

5. Monitor ongoing Ames Laboratory activities and relevant records (e.g. ORPS) to ensure safety of the public and Ames Laboratory workers, protection of the environment, efficiency of operations, and stewardship of DOE's property and resources;

6. Ensure open communications with the contractor regarding current, emerging, or potential issues affecting operations and performance, and monitor implementation and effectiveness of corrective actions;

7. Communicate results from the Operational Awareness program to the contractor, and DOE Office of Science, as appropriate.

8. Review Ames Laboratory annual self-assessment and evaluate Ames Laboratory ISMS implementation based on AMSO's accumulated operational awareness information, and provide input to the annual assessment of Ames Laboratory.

3.0 AMSO Roles

Fulfilling the Operational Awareness roles is essential to achieving the goals of the Operational Awareness program.

3.1 AMSO Manager

The Manager provides overall leadership for the Operational Awareness Program and use program results to make decisions regarding allocation of DOE resources, direction of ongoing projects and programs, and resolution of issues or problems identified during Operational Awareness activities. The Manager is responsible for implementing an integrated management system within AMSO.

The Manager provides leadership in integrating Operational Awareness activities with ongoing efforts to facilitate the outreach program to the community. The

Manger conducts Operational Awareness activities to obtain information, to lead by example, and to coach responsible personnel in expectations. Staff members within AMSO and matrix support staff assist the AMSO Manager to ensure that an effective and efficient integrated management system exists.

Specific Operational Awareness activities and responsibilities include the following:

- Monitoring selected contractor activities in the field;
- Establishing guidance and direction on the conduct of the Operational Awareness Program;
- Assessing the overall risk associated with activities at Ames Laboratory and ensuring that the Operational Awareness Program is consistent with the level of risk;
- Participating with subordinates in completing Operational Awareness activities;
- Meeting routinely with subordinates to review information collected through Operational Awareness activities;
- Meeting with contractor management to discuss results from the Operational Awareness Program;
- Communicating results from the Operational Awareness Program to the Office of Science (SC).
- Making decisions and providing direction to the Contractor based upon staff findings and conclusions reached as a result of Operational Awareness;
- Reviewing the effectiveness of the Operational Awareness Program and making appropriate changes to ensure its continued effectiveness, and;
- Approving facility safety documentation and coordinating with Office of Science, as appropriate.

These roles reflect management's expectations and provide a basis for holding AMSO personnel accountable for performance.

3.2 Facility Representative (FR)

The AMSO FR serves as "eyes and ears" for AMSO in monitoring routine operations at Ames Laboratory facilities. The primary function is to perform a broad range of Operational Awareness activities. The FR is assigned to ascertain whether work is performed within the approved safety envelope, to identify and evaluate safety and health issues and concerns, to work with the contractor to diagnose root causes for problems and identify short-term compensatory measures and/or long-term solutions, and follow problem resolution to a satisfactory conclusion.

For optimum performance, the FR must have detailed knowledge of Ames Laboratory, e.g., regarding facility design, authorization basis, operating practices, and administrative controls. The FR must be able to conduct a meaningful review of Occurrence Reports prepared by the contractor and entered into the Occurrence Reporting and Processing System (ORPS).

Specific Operational Awareness activities that are the responsibilities of the AMSO FR are outlined in AMSO SOP-5, Facility Representative Program and SOP-12: Assessments of Laboratory Management Systems. In general these activities include:

- Performance of on-site walkthroughs of facilities to monitor conditions and observe a broad range of work activities;
- Conduct surveillances and participates in ESH and QA functional area assessments to evaluate performance of specific ES&H functions;
- Review of completed contractor self-assessments to evaluate the effectiveness of the contractor's self-assessment program;
- Participation in experiment safety reviews, readiness reviews and assessments for assigned facilities and for other facilities, as required, including periodic joint reviews with the contractor;
- Participation in meetings in the facility where important policy or operational issues may be addressed;
- Participation in critiques or contractor lessons-learned meetings to evaluate the circumstances surrounding operational events;
- Disclosure of observations, findings, and concerns to contractor facility management and to AMSO management for action, including stop-work actions, when necessary, and follow-ups on directions/actions to ensure that they are completed;
- When appropriate, stopping work consistent with AMSO SOP-5.
- Communication of information on operational activities, emerging issues, or other items of interest to AMSO management, recommending actions, where appropriate.
- Analysis of data to detect trends and patterns that could indicate an ES&H issue.
- Review and track all issues and activities that impact ES&H performance, effective infrastructure management, and stakeholder confidence.

3.3 Environment, Safety and Health Specialists (Matrix Support)

The Chicago Office (CH) provides ES&H Specialists (matrix support) to serve as subject matter experts. They have substantial expertise and experience in one or more functional areas important to ensuring safe operation of Ames Laboratory facilities. The ES&H Specialist is expected to apply a site-wide perspective to evaluations in their functional area. These Specialists partner with the AMSO FR to ensure that contractor programs relevant to their discipline(s) are developed and implemented, and once implemented, are effective in

ensuring compliance with applicable standards and requirements, and in promoting excellence. For example, ES&H Specialists assist in conducting assessments, analyzing issues, and helping to clearly communicate DOE expectations.

Specific Operational Awareness activities that are the responsibilities of the ES&H Specialists are:

- Assisting a FR in the review of conditions in various site facilities, related to their specific functional responsibility;
- Review and provide comments on the adequacy of Ames Laboratory's ES&H documents.
- Periodically monitor and review the effectiveness and consistency of contractor implementation of ES&H programs in their area of functional responsibility;
- Review of completed contractor self-assessments to evaluate the effectiveness and accuracy of the contractor's self-assessment program;
- Participate in routine meetings with contractor ES&H counterparts to discuss issues and the effectiveness of specific programs;
- Participate in readiness reviews and assessments as assigned, including periodic joint reviews with the contractor.
- Analysis of data relating to performance in their area of functional responsibility to detect trends and issues;
- Evaluation of the contractors annual self-assessment report to DOE;
- Observation of and participation in contractor critiques or investigations of operational events or accidents relating to their area of functional responsibility;
- Disclosure of observations, findings, and concerns to contractor management and to AMSO management for action and following up on direction/actions to ensure that they are completed.
- Communication of information on operational activities, emerging issues, or other items of interest to AMSO management;
- Disclosure of observations, findings, and concerns to contractor management and to AMSO management for action and following up on direction/actions to ensure that they are completed;
- When appropriate, stop work consistent with AMSO SOP-5 Facility Representative Program.

3.4 Financial/Contract Specialists

Financial/Contract Specialists help AMSO ascertain whether Ames Laboratory is meeting DOE requirements established in the contract for operation of the Laboratory and that Ames Laboratory is applying acceptable business practices in using funding allocated for programs at the site. The Financial/Contract Specialists coordinate overall reviews of contractor performance associated with determining if contractual performance requirements have been met. Their other

roles include monitoring and controlling changes to contract scope, controlling the allocation of funds, and ensuring that specific Departmental requirements relating to contract administration are fulfilled.

Specific Operational Awareness activities that are the responsibility of Financial/Contract Specialists include the following:

- Reviewing and approving proposed changes in scope and content of the contract. Periodically meeting with the contractor to discuss the status of the contract, including financial expenditures;
- Communicating observations, findings, and concerns regarding financial or contractual matters to contractor management or AMSO management, as appropriate, for action and following up on those actions to ensure that they are completed;
- Communicating information on financial or contractual matters, emerging issues, or other items of interest to AMSO management; and
- Issuing formal correspondence to the contractor for specific ES&H actions and following up on those actions to ensure that they are completed.

4.0 Operational Awareness Activities

The AMSO Operational Awareness program consists of a broad range of activities that provide a basis for comprehensive monitoring of contractor operations and performance, including the planning, implementation, and evaluation of work and work processes. A list of the activities and a brief description of each of these activities follows:

4.1 Observations and Walkthroughs

This activity involves observing conditions where work is being performed, interacting with contractor personnel responsible for performing work, and observing activities in progress. Walkthroughs and observations provide a "snapshot" of workplace conditions, the objective being to collect general information on conditions associated with the work and on issues requiring additional evaluation. Although observations and walkthroughs may focus on specific functional areas or disciplines, their most important use is to collect information on workplace activities, the concerns of the contractor workforce, and the status of ongoing work.

4.2 Surveillances

Surveillance involves observing specific activities to evaluate compliance with DOE requirements and standards, gauge overall performance, and ensure that environmental protection, health and safety programs for the observed activities are being implemented effectively. Surveillances provide a "snapshot" of how specific work activities are being performed. They allow AMSO personnel to

identify weaknesses in hazard identification, analysis, and mitigation associated with different types of work activities, and to assess how effectively hazard controls are being implemented. Surveillances provide an opportunity to focus on specific work activities and evaluate adequacy of personnel training and qualification, adequacy of and adherence to administrative controls, effectiveness of engineering controls, effectiveness of specific ES&H programs, and overall performance.

4.3 Readiness Reviews and Assessments

Readiness reviews and assessments are an evaluation of operations, activities, or facilities before start-up or restart to determine whether they can be conducted safely. They are performed on new operations, activities, or facilities, and those that were suspended for reasons relating to operational safety. AMSO personnel may observe readiness reviews performed by the contractor or may participate as members of DOE teams assigned to independently validate contractor reviews. Readiness reviews and assessments may require review of authorization basis documents, operational procedures, program documents, and special safety program documents. These efforts may also entail observation of work activities, evaluation of personnel training and qualification, walk-downs of systems and equipment, and interviews with personnel.

4.4 Meetings

This activity includes participation in meetings with the contractor, as well as observation of contractor meeting. Some meetings are conducted to discuss the results of Operational Awareness activities. Observing contractor meetings provides AMSO personnel with an opportunity to gather information on upcoming activities, examine contractor practices regarding analyzing hazards, and scrutinize overall communication processes. Specific contractor meetings where observations may be warranted include pre-job briefings, safety review committee meetings, project status review meetings, work planning meetings, and post-job evaluations. Meetings with the contractor to discuss results from Operational Awareness activities provide a valuable opportunity to exchange information, discuss issues, and agree on resolution of findings, concerns, and observations.

4.5 Functional Reviews

Functional reviews are focused assessments of ES&H programs or elements of ES&H programs. These focused assessments will include reviewing specific documentation, such as program plans, descriptions, procedures, occurrence reports, and other reviews. AMSO Functional Reviews may include discussions with Laboratory staff, surveillances, and observation of Laboratory activities to determine the overall effectiveness of the safety program. The objective of the focused assessment is to determine the effectiveness of specific programs

across the Laboratory and to identify weaknesses before they become significant issues.

4.6 Critiques and Event Reviews

Monitoring the response to operational events, including analysis to identify causes and planning of corrective actions to prevent recurrence, is an important element of Operational Awareness. Such events may include accidents and injuries, environmental releases, damage to equipment or structures, or failure of safety systems to perform as intended. AMSO personnel attend critiques conducted by the contractor to analyze operational events, collect information regarding conditions before the event, determine sequences of events, and examine responses to events. The purpose is to monitor investigations of operational events conducted by the contractor to ensure the effectiveness of the contractor's process and the adequacy of corrective actions implemented to prevent recurrence.

4.7 Evaluations of Contractor Performance Measures

Performance measures and Self-Assessment Measures are negotiated annually and are included in the Ames Laboratory contract. A number of measures are included to allow evaluations (and continuous improvement) of Ames Laboratory's performance in the area of safety management. A formal evaluation of Ames Laboratory performance against these measures is conducted each year by AMSO. This formal evaluation is used to determine contractor fee.

4.8 Contractor Self-Assessment Activities

The contractor is expected to evaluate itself on an ongoing basis to identify weaknesses that need to be corrected, as well as potential improvements in practices and processes. These self-assessment activities encompass efforts by the line organizations and the contractor's independent ES&H organization. They also may incorporate the results of independent assessments, such as peer reviews, arranged by the contractor. The contract and other agreements of the parties establish the scope and frequency of the self-assessment. AMSO uses the results of its other Operational Awareness activities to evaluate the effectiveness of the contractor's self-assessment program. AMSO considers this effectiveness, along with the results of prior operational awareness activities, when scoping and scheduling future operational awareness activities.

4.9 ES&H Planning

The contractor is responsible for preparing annual documents describing allocation of resources for ES&H projects. AMSO personnel review the contractor's proposed allocation of resources, including application of tools to define priority of various proposed projects, adequacy of funding levels, and

schedules for proposed projects. AMSO Manager is responsible for ensuring that the Laboratory's prioritizes ES&H and infrastructure projects appropriately with available funding.

4.10 Occurrence Reporting/Follow-up

AMSO SOP-6: Occurrence Reporting provides direction to AMSO personnel for ORPS occurrence reporting/follow-up. This direction implements the requirements of DOE Order 231.1A, "Environment, Safety, and Health Reporting" and DOE M 231.1-2, "Occurrence Reporting and Processing of Operations Information." The AMSO procedure provides direction to AMSO personnel regarding the following:

- Timely identification, categorization, notification, and reporting to DOE management of reportable occurrences at Ames Laboratory;
- Review of reportable occurrences to assess the significance, root causes, generic implications, and the need for corrective actions;
- Timely evaluation and tracking of implementation of appropriate corrective actions;
- Dissemination of occurrence reports to other DOE operations and facilities to prevent similar occurrences; and
- Utilization of a central DOE system for reporting, processing, and retrieving unclassified reports.

4.11 Collaborative Work Planning & Hazards Analysis

This activity involves the observation of or participation in AMSO selected contractor work planning and/or hazards analyses. This activity can substitute for surveillances, walkthroughs, or observations. It allows the evaluation of the effectiveness of the Contractor's Integrated Safety Management System and minimizes the disruption of work activities caused by reviews and other evaluations.

4.12 Trending of ES&H Issues

The qualitative review of data related to performance may allow the detection of trends and patterns that could indicate an ES&H concern. These data sources include monthly facility representative reports, monthly and quarterly project/program performance reports, occurrence reports, program review results, observation/walkthrough results and surveillance findings. Potential trends/patterns that are discovered may be the basis for AMSO follow-up activities, such as identifying the issues to the Laboratory management through

formal correspondence and conducting follow-up program reviews to more fully evaluate the area of concern. The Laboratory response required by AMSO is identified in the correspondence to the Laboratory or in the program review report.

5.0 Continuous Improvement

The AMSO Operational Awareness Program should be evaluated at least annually to identify weaknesses, strengths, and potential improvement opportunities. The review should be a comprehensive self-assessment performed by personnel responsible for implementing the program.

The following topics could be addressed in the self-assessment:

- Effectiveness of policies, procedures, and guidance documents;
- Adequacy of planning processes;
- Adequacy of training and qualification processes;
- Effectiveness of operational awareness activities in identifying potential issues;
- Effectiveness of communications within AMSO, Ames Laboratory, and with DOE Office of Science;
- Adequacy of performance measures with AMSO;
- Ames Laboratory responsiveness to items identified as a result of operational awareness activities;
- AMSO's Manager's involvement in the AMSO Operational Awareness Program; and,
- AMSO satisfaction with the program.

6.0 Communications

The most important elements in determining the overall effectiveness of the AMSO Operational Awareness Program is communication and knowledge. Personnel performing Operational Awareness activities must know of significant issues and communicate results to AMSO management for action and to the contractor for information. AMSO management communicates results from the Operational Awareness Program to DOE Office of Science. Additionally, personnel performing Operational Awareness activities communicate with each other to share results, discuss effective techniques, and ensure that the implementation of the program is completed without duplication and overlap.

7.0 References

AMSO-SOP-4: Functions Roles and Responsibilities

AMSO SOP-5: Facility Representative Program

AMSO SOP-6: Occurrence Reporting

AMSO SOP-12: Assessments of Laboratory Management Systems

AMSO SOP-13: Emergency Management

DOE O 231.1A: Environment, Safety, and Health Reporting

DOE M 231.1-2: Occurrence Reporting and Processing of Operations Information

DOE Policy 450.4: Safety Management System Policy

DOE Guide 450.4-1B: Integrated Safety Management System Guides